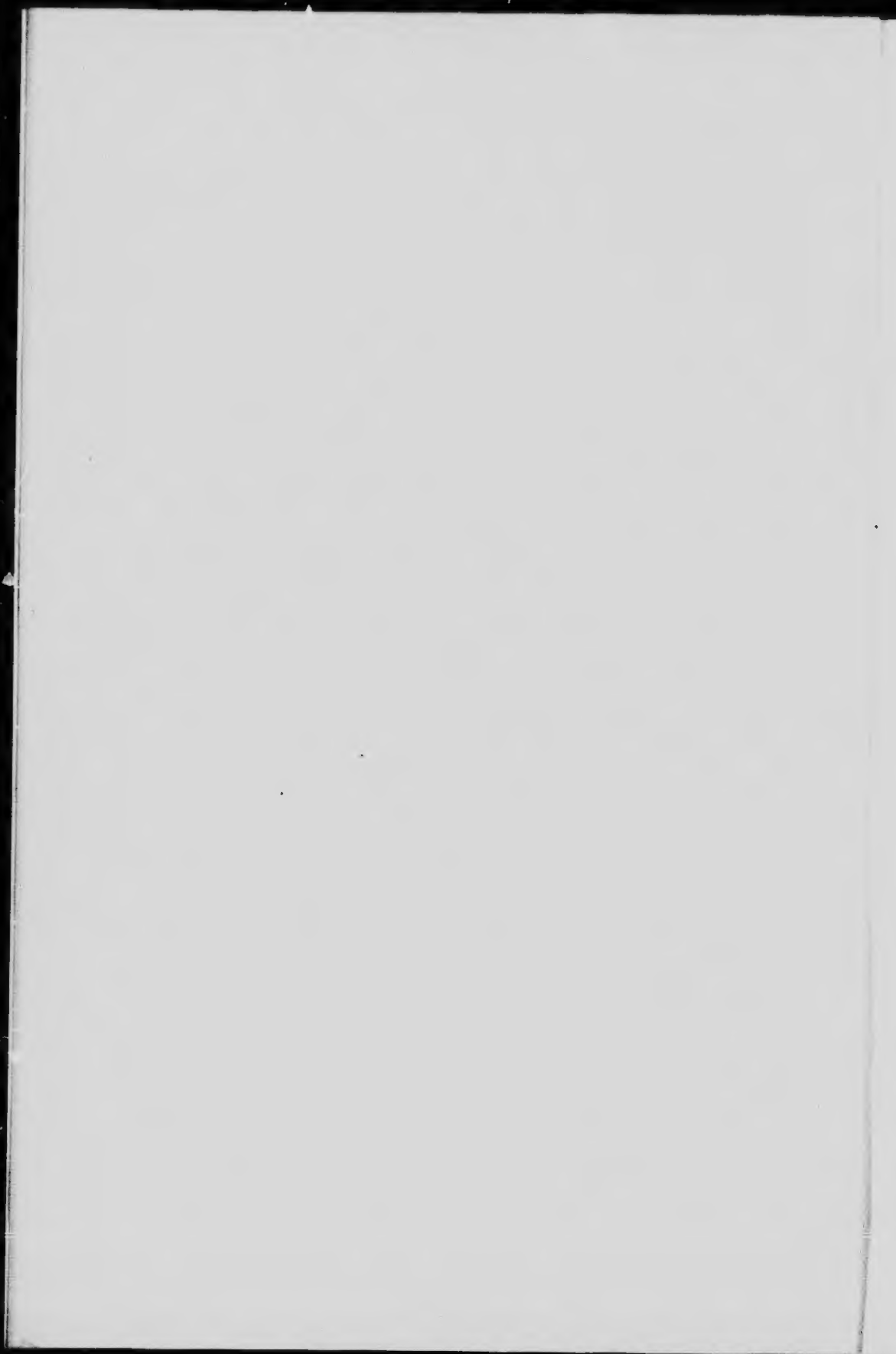




# **European** **Ports**

**THROUGH  
CANADIAN  
EYES**



**Presented with  
Compliments of  
G. W. Stephens, Jr.**

**By  
GEO. W. STEPHENS, Jr.  
Montreal, Can.**

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## DEDICATION.

To all Canadians who realize the tremendous natural heritage we are heirs to. Who realize the responsibility this entails. Who have a faith in the future of their country large enough to lift them above the disintegrating influence of local jealousy, strong enough to inspire a loyal co-operation in the vital questions that concern our national welfare. To Canadians of every province who realize that Canadian commerce ought to be handled by Canadians through Canadian ports. Who realize that twenty years of inaction and neglect have placed Canada in the shameful position of allowing the greater part of her export trade to be handled by foreign ports. Who realize that the remedy for this outrageous annual tax upon Canadian produce is the immediate equipment of our sea terminals, the deepening of our waterways, the buoying and lighting of our channels. To all those Canadians, therefore, who have their own personal welfare at heart, these few pages are respectfully dedicated in the hope that their interest and above all their action may hasten the accomplishment of a national work which the natural resources of Canada demand should be done at once.

G. W. STEPHENS, JR.



# EUROPEAN PORTS

THROUGH CANADIAN EYES

By Geo. W. Stephens, Jr.

On the 1st of October last I left Canada for a holiday in Europe. While there I realized that it was an opportunity not to be neglected of visiting as many sea ports of Europe as time and opportunity might permit, with a view of looking into existing conditions, examining the manner in which exports and imports are handled abroad, and the steps that have been taken in the different shipping centres of Europe and Great Britain to accommodate the demands of modern shipping. For this purpose it was my good fortune to spend some time in each of the following places, Hamburg, Rotterdam, Antwerp, Calais, Cherbourg and Havre, London, Plymouth, Southampton, Bristol and Newcastle, Glasgow and Liverpool.

In covering the ground referred to above, and in taking up this question of seaports, terminals and their equipment, I admit not having any special qualification, nor do I claim in any of the remarks that are to follow any expert knowledge with which to color impressions received. I have simply gathered facts and impressions as I went along which seemed to me to be of some interest to Canadians, as they certainly were to me. I should like those who happen to read these lines, and any letters on this subject that may follow, to bear in mind that I am giving personal impressions only, for

which I alone am responsible. These letters will likely not bring anything new to those who have interested themselves in the development of Canadian ports, but I should very much like to awaken Canadian people of every Province, and in every calling of life, to the importance of this port question to the farmer, miner and laborer as well as the shipowner.

The strongest impression made upon my mind after spending the better part of three months visiting the most important shipping centres of Europe and Great Britain, is this, that in treating terminal facilities in Canada the paramount consideration should be the immediate adoption of a harbor improvement scheme that will not only provide Montreal with modern harbor and dock equipment, but will provide conditions either in Quebec, St. John, Halifax or Sydney that will attract the trade during that portion of the year when Montreal must per necessity be closed, and thus preserve in Canada, at Canadian ports, the continuity of commerce. The work should be done by the nation and not by private corporations. The continental system has almost entirely discarded private and individual investment in the matter of harbors and terminals, and the great ports of Europe have been built up by the people's money, are managed by the people, and are owned by the people. Harbor and terminal rights are highly valued in Europe, and it is held that the benefits of these should be national instead of local, and so the nation's money, at low interest, is put into these national undertakings, and the whole people become shareholders instead of the terminals being exploited for the benefit of a few capitalists.

Montreal has given away enough public franchises in the past. The re-

maining few should be held for the people.

#### WINTER PORTS.

It may as well be admitted that there exist to-day obstacles of a practical nature which prohibit the consideration of Montreal doing business as an open port in winter. For this reason it is evidently short-sighted to develop the port of Montreal without at the same time taking steps to improve the docking facilities in one or more of Canada's other sea ports. Shipping men whom I met abroad emphasized repeatedly the point that all water transportation was much facilitated and cheapened by conditions which allowed the same ships to ply continuously between the same points, tying up at or near the same docks. It is not a matter of great satisfaction to contemplate the development of Montreal as a port and feel that while so doing Canadians are attracting and increasing a trade which they simply hand over to the ports of a foreign country for half the year. It means something to Canada and Canadians whether six months of her shipping business is given as a gift to other people, or whether, by foresight and enterprise, we can divert this generosity into the hands of our own people where it ought to remain. I believe that Canadians have not realized the difference it would make to Canada if those who have the power would rise high enough above petty jealousies and local interests to realize that, while we are momentarily making each petty interest serve its own end, we are at the same time giving our competitors the opportunity, which they seize with avidity, to attract into foreign channels the trade which is justly ours. It is not a proud thing for Canada to witness a village of 30,000 inhabitants

on the coast of Maine with terminal facilities which we cannot supply in Montreal owing to the clashing of many different interests. The ports of Europe that are vying with each other to supply shipping with modern requirements have all had more or less the same difficulties to cope with. Those who have been successful, and who are to-day attracting the world's trade and increasing their own prosperity, are the ones which at the outset recognized the impossibility of arriving at satisfactory results where so many interests clashed. Agreeing to disagree, they placed their development in the hands of one or more distinguished experts whose independent position guaranteed the unprejudiced shaping of the future, and their plans and suggestions, submitted after exhaustive examination of prevailing conditions, were eventually the common ground for a continuous scheme of harbor development extending over many years, and in the end presenting a harmonious whole.

#### FOREIGN CRITICS.

The stories I have heard abroad about the St. Lawrence route were in many cases so exaggerated and so entirely venomous that my impression grew stronger, as the numerous stories increased, that this is one means adopted by our competing seaports to the south and those interested in their success, to discredit Canadian harbors in general. Be this impression true or false, the idea is nevertheless strongly rooted abroad that the St. Lawrence route is beset with insurmountable obstacles. What we ought to do, it seems to me, is to spare no money and no means until what remains to be set right in our national waterway is adjusted with the very best appli-

ances available. Let our cities crush the idea of strangling each other for fear of not holding or increasing our local trade. The world holds enough business to guarantee the development of Montreal, Quebec, Sydney, Halifax and St. John, and when these ports are equipped as their competitors are to-day business will come, remain, and grow in spite of all the calumny and libel that may be used by competing terminals.

That continental ports have had their difficulties is early recognized by any one who inspects their position and acquaints himself with the history of their development. After seeing the difficulties overcome by united action and enterprise elsewhere the conviction is strengthened that there remain very few connected with our own port that cannot be surmounted. I hope to show briefly in the letters which follow the position and equipment of Continental ports, what it has cost the people to bring about these improvements, and the immediate widespread benefits accruing to each nation in their bid for a share in the world's trade.

It is a marvellous thing that, with the wretched equipment of our harbor in the past, we have been able to hold the trade as we have, and after seeing the way other ports are equipped to handle business one cannot but feel that there must be a tremendous future for the port of Montreal when its equipment shall be modern and complete, meaning a great increase in population, increase in prosperity for everybody, and commercial prestige for Canada.

Premier Parent, in his speech at Quebec recently, struck the right note when he pointed out that among Canadian ports "co-operation" was the

greatest need of the hour, and not competition. When this message shall have sunk deep enough into the hearts of the Canadian people to awaken the energy and enterprise which till now has wasted itself in useless jealousy ; when the citizens of Canadian seaports shall have realized that the development of their terminal facilities means increased population, greater prosperity and less taxation ; when they realize that this port development question is one that concerns intimately the laborer on the street, the carpenter in his workshop, the farmer on his land, just as much as the carrier of the merchandise we have to sell, then will the spirit of progress bound forward to its just goal and local prejudice will be set aside in the higher conception of national greatness.

## II—ANTWERP

The little kingdom of Belgium contains about 11,000 square miles in area, and has a population of some six and a-half millions, who speak Flemish and French. Centuries of war, revolution, and political intrigue on the part of her enemies have, however, bound together her people, who, since 1839, have enjoyed an independence guaranteed by the five great powers of Europe. This welding together of a people who fought for liberties of speech and self-government has created a populace which ranks among the most industrious and enterprising in the world. Nature has placed her in the centre of a great continent, and endowed her with rich mineral deposits within reach of the open sea, and to these facts is largely due her phenomenal development as a commercial nation. The enterprise of her people has made her a gateway of trade to the heart of Europe, for an immense transit commerce in addition to her own local business. If you take the map of Europe and follow the winding course of the River Scheldt from its southern mouth you will find that about seventy miles from the North Sea, inland, is situated the town of Antwerp, the most extensive city of Belgium, the largest and most modern equipped port in Central Europe. The width of the river where it leaves the sea upon whose waters come and go so many of the world's great ships, is slightly over two miles, and the southern arm is now the only one used as an entrance to the harbor of Antwerp.

### DIFFICULTIES SURMOUNTED.

In the distance which separates this city from the sea were once to be found natural difficulties for the

navigation of large tonnage vessels which over and over again baffled engineering skill. The channel bottom, as well as the banks of the river, being largely of sand, have been changed and altered by the extreme tides, whose influence is felt far beyond the city of Antwerp. The damming of the northern branch of the river, the straightening of its many curves, the dyking and building of revetment walls, have all had to be resorted to in order to preserve a channel that could be relied upon. At times the width of this river diminished so that the entire volume of water was compressed within banks a few hundred feet apart. These places at stages of the tide and wind became impassable to ships of any burden. By continuous dredging, a perfect system of buoying the channel, and the expenditure of vast sums of money, these natural drawbacks have been made to disappear, until the waterway from the sea to the port of Antwerp has been made as easily navigable for ships of all tonnage up to twenty-eight feet as it is to steer a trolley car down St. James Street.

In 1870 the first serious attempts at modernizing the port were undertaken, the Government appointing a commission to examine the whole situation. The plans were prepared by the experts appointed, and after five years of political discussion were approved. It has, therefore, taken thirty-two years of continuous labor and expenditure to overcome nature's obstacles and in their place to establish conditions demanded by modern shipping.

#### DETAILS OF IMPROVEMENTS.

The channel, from the mouth of the river to Antwerp, is lighted by twenty-seven floating marine lamps, each of a penetrating capacity of eight miles,

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nine of ten miles, one of fourteen miles and one of eighteen miles. This means that in a distance of sixty miles have been placed, as aids to navigation, thirty-eight different lights, each with an individuality denoting the alignment which a vessel coming or going ought to take. This practically turns night into day, as far as the navigation of the river is concerned. Buoys guide the pilot by day. The shipping year has therefore been doubled by the ingenuity of Belgian engineering skill.

Opposite the city of Antwerp the river is about 1,500 feet wide and thirty feet deep at low tide. The banks of the river have been made available by the building of a quay of solid masonry, and owing to the tide, 25-35 feet, the dimensions of this wall are excessive and the cost enormous. The length of the quay extends over several miles. It is sixty-five feet high, twenty feet thick at the foundation and eight feet wide at the top. The depth of the water alongside is supposed to be thirty feet at low tide. Upon this quay are permanent sheds 150 feet in depth, connected by four lines of railway tracks with the railroad terminals. Two of these tracks run within a few feet of the water's edge, so that loading and unloading can be done direct from cars to ships, and vice versa.

Along this quay I counted eighty-three hydraulic cranes, mounted on trucks, the wheels of which moved on the outer rails of the four tracks already referred to. The space of the crane legs allowed the cars to move directly beneath them. The capacity of these cranes varies from 1,000 to 3,000 pounds, and as many as desirable can be placed alongside a ship, so that loading and unloading can be carried on at the same time.

Every few hundred yards a lane of transverse tracks running at right angles to the main line at the water's edge is built to transfer the loaded or unloaded cars out of the way to the other main line on the other side of the sheds.

The shunting and transfer of cars is done by means of hydraulic capstans. For instance, a laborer snibs the end of a rope on to a car or cars, and twists the other end to the capstan, which, revolving, takes away the cars, and others are brought up in the same manner.

There are also huge stationary cranes at certain points, with a capacity up to 160 tons.

Everything seems to be planned for rapid handling of cargoes at a minimum cost.

There are also ten floating, or wet, docks, comprising a quayage length of 33,000 feet and a water area of over 2,000,000 feet, all of which have been excavated out of the solid earth.

There are ten dry-docks in Antwerp for the repair of ships. Altogether, the docks and harbor works represent an expenditure of thirty millions of dollars, and the population of Antwerp is no larger than Montreal. Antwerp does an immense transit business with Central Europe, and by the wise foresight of her people her tonnage has doubled since she provided her port with modern facilities.

The control and supervision of the port are vested in the City Council, and great care has been taken not to allow private concerns to acquire rights for the exploitation of the public.

#### ATTRACTING POPULATION.

In addition to the long quay lining the river, are the "Northern Docks,"

covering an area of about 750 acres, and connected with the channel by locks, and with each other in the same way. These docks, one of which would measure about 1,050 yards long by 150 wide, are large inland basins excavated out of the solid earth and walled in by solid masonry quays. Railway communication is provided by a perfect network of tracks running parallel to the dockside and connecting with the main lines at different points. The building of these docks has necessitated the erection of modern warehouses, storage sheds and elevators; has attracted commercial men and firms from all Europe to establish branch houses in Antwerp. Large manufacturing interests employing numbers of hands have been established in Belgium, and the advance of commercial wealth all over the country has been hastened by the wise and continuous policy of port equipment. Belgium has become one of the richest countries of Europe, and is an extensive money-lender to many of the powers who only a few years ago created her nationality.

Broadly speaking, private ownership does not exist on the Continent. Wharves and quays, like the navigable river, all belong to the government, and are under its control. Permission is never accorded to private firms or public companies to exploit these for their own particular ends or benefit.

Three times during the last century Antwerp became lifeless by the loss of her shipping, caused largely by political intrigue. Her development as a port is solely due to the intervention of the public authorities, who had faith in her possibilities and courage enough to rise above the clamor of narrow views. She spent twenty-five millions of dollars to modernize and

equip the port, so that to-day Europe does not possess a more splendid example of commercial enterprise and sagacity. The sacrifice of the people has amply repaid them in the increased prosperity of the town, the growth of wealth, extending through all classes, and a prestige which has placed her in the proud position of rivalling the world as a business harbor. Montreal could do likewise. What it has meant to Antwerp it would mean to Montreal—immense increase in population, commercial activity, and the whole country benefiting thereby.

No question is of such vital importance to all Canada, no need more urgent, than the equipment of our sea-ports. The Canadian people have invested probably more than one hundred millions of dollars in railways, and over eighty millions in canals, while our ports have been shamefully neglected. We are suffering the humiliation to-day of seeing trade go elsewhere because we are not ready to handle it in our own ports. The equipment of Montreal will take fifteen years of organized and continuous work, we are already fifteen years behind our competitors. It will probably take fifteen or twenty millions to do the work if we would rank as a modern port. We may as well realize this at once, and, instead of paralyzing the hands of the Government with the cry of extravagance, public opinion should recognize the national and immediate importance of the work, and encourage the legitimate spending of money in doing what ought to have been commenced twenty years ago.

The voice of the public should be so loud and so decided on this subject that no government could stand by a disinterested listener.

### III—ROTTERDAM

There are no two nations in Europe which have achieved independence at such enormous cost and sacrifice of life as Belgium and Holland. There are few peoples in the whole world whose contribution to art and commerce has been so distinguished. There are none whose instincts of national life have had to face such trials and overcome such difficulties.

Of Holland it may be truly said that she has stayed the waves of the sea, for her very existence depends upon the dykes and embankments by which the waters of the ocean are kept back. The immensity of the works, and dauntless energy of her people, can be imagined when you consider that these huge sea walls line practically her whole coast and cost, in maintenance alone, six millions of dollars annually. Holland covers about 12,000 square miles, and her people number some five millions. She has colonies beyond the sea, however, with a population of thirty-five millions, and an area of 766,000 square miles. Her imports amount to 800 millions of dollars, and her exports 750 millions per annum.

#### DIFFICULTIES SURMOUNTED.

The city of Rotterdam, which has taken its place as one of the world's great seaports, is situated on the River Maas, about twenty miles from the sea. The conditions surrounding the development of this city and port are unique, and bear witness to the untold sacrifice and courageous labor of her people. There is not a single dwelling wall, quay or dock in the whole town that does not rest upon piles driven through half a hundred feet of oozing mire, and every stone and timber has been brought from foreign lands to do

this. The River Maas is the main outlet of the Rhine, which is navigable as far as Cologne for boats drawing not more than ten feet. Above Cologne the depth diminishes to six and eight feet. The amount of river trade between Holland and Germany, by way of the Rhine, comes to something like nine million tons of freight per annum, four-fifths of which passes through Rotterdam.

In 1890 the depth of the channel from the port to the sea was fifteen feet at high water. This depth was doubled in thirteen years, so that since 1893 a thirty-foot channel has existed. To this work—the creation of a new waterway to the sea—is due the rapid expansion and flourishing condition of the port. The maritime tonnage doubled in ten years after completion of the thirty-foot channel and equipment of the harbor. The citizens of Rotterdam were no doubt urged to grapple with their port problem by the rivalry of Antwerp, and were not slow to realize the vital importance of carrying out this national work with the utmost dispatch if they would hold their trade and maintain their prestige.

#### INLAND DOCKS.

The quays are built mostly of stone and brick, extending over seventeen miles in length, not, of course, in a straight line, but surrounding numerous basins, or docks as they are called. One of these large inland docks would be about one and a-quarter miles long by one thousand feet wide, giving nearly three miles of moorage. A curious but convenient system of mooring buoys placed in mid-channel adds tremendously to the harbor capacity, especially for the transit trade, as vessels so moored can discharge into two lighters or barges at the same time.

Upon the quays are seen all the most modern appliances for the expeditious handling of merchandise. There are about seventy-five cranes, fixed and movable, with a capacity varying from 1,500 pounds to sixty tons. It costs four cents per ton to load coal in this port, at the rate of 200 tons an hour.

The railway facilities of the port are not so extensive as those of Antwerp, but the principal harbors, warehouses and quays are all direct'y connected with the main line.

These docks, harbor equipment, channel works as they now stand represent eleven years of continuous and united effort and an expenditure of some sixteen millions of dollars.

One central controlling power governs the whole situation, spends the vast sums necessary to keep pace with the demands of trade, and regulates the port charges. Instead of wrangling and discord, one sees harmony and method, so necessary at the head of any business undertaking if success is aimed at.

## IV—HAMBURG

Eighteen years ago, during the summer months, I lived in Hamburg, and was connected with the firm of Steidt-mann, Alexander & Co., importers, whose office was situated on the "Alter Wandrahm," one of the streets leading down to the harbor. I became more or less familiar with the quays at that time, and could easily find my way among the huge warehouses and elevators. It often occurred to me to wonder whether Montreal would ever become as busy a place as Hamburg, while I felt proud that at least nature had bestowed upon my native city qualities which I saw other people spending large sums to acquire. Eighteen years have gone by since I last visited Hamburg. The street where my office was, has disappeared. In its place is a new harbor. Large slices of valuable property have been sacrificed in the work of enlarging the facilities of the port, and new harbor basins have been provided wherever necessity demanded more space.

When, in 1888, Hamburg ceased to belong to the Hanseatic League and joined the Customs Union, her position relatively speaking was much the same as that occupied by Montreal at present. Although, even then, doing an enormous business, in spite of great difficulties, she saw trade, that ought to have been her own, going elsewhere to ports that could offer cheaper handling and better accommodation. The clashing of long-established interests, her distance from the sea—separated as she then was by an inadequate channel—tidal drawbacks, ice blockades during winter months, ways and means necessary to grapple with these difficulties, all these questions had to be met in her race for harbor supre-

macy. Putting her shoulders to the wheel, Hamburg silenced the petty discord of street-corner politics, took a dignified and farsighted stand, becoming a great commercial city; and applying all her strength and the necessary funds to carry out the needed extensions, her prestige as the most important continental seaport was maintained. Until 1888 the commerce of Hamburg entered that city without paying customs duties until shipped beyond the limits of the city.

#### A FREE PORT.

When, in this same year, she entered the Customs Union she realized that the character of her commerce would change unless she preserved some of her old rights. To provide against this, a section of the city containing 2,500 acres was laid out and wholly separated from adjoining property, and within this territory are to be found the docks, quays, warehouses, etc., of to-day. At the same time, therefore, of 2,500 acres of the city property, exclusively devoted to the wants of the port, has the modern harbor of Hamburg been established. Within these limits, where once old rookeries and narrow, antiquated buildings lined the gloomy streets, have arisen innumerable quays and warehouses, possessing all the most modern facilities for the loading, unloading and storage of mercantile goods. The great hopes of her citizens have been surpassed and she has become, through the character and enterprise of the merchants, a vast entrepot for merchandise awaiting sale, manufacture or reshipment.

The natural position of Hamburg makes her the commercial distributing point for Northeastern Europe, especially in connection with English, Scandinavian, Russian, German and

Austrian trade, and no port in Europe that I know of has so many features in common with Montreal.

Hamburg, like Montreal, lies at a point on the river (the Elbe) where transportation by barges to the interior, ends, and ocean navigation begins.

#### RESEMBLANCE TO MONTREAL.

At nearly 100 miles from the sea, this great inland port is established. Between her and the sea nature has raised many drawbacks, some of which have been overcome by money and engineering skill, others were deemed too costly to execute or too expensive to maintain. Of these I will only speak, to show what can be accomplished by united effort and perseverance. The principal impediments are to be found in the existence of four sandbars at various distances down the river, which have restricted the entrance of vessels drawing more than twenty feet into the port of Hamburg, except at high tide. The question suggests itself at once, Why are these not removed by dredging? I do not pretend to know the technical reason standing in the way, but the fact remains that none of the fast mail steamers can ever risk coming up into the harbor when having their full load of coal for a voyage. For this reason also, and to accommodate this special passenger business, the harbor of Cuxhaven has been built at the mouth of the river, where steamers of this class berth, land and take on passengers. The large freighters also, to avoid any risk, nearly always complete their cargo below the worst of the sandbars. Cuxhaven bears the same geographical relation to Hamburg that Quebec does to Montreal. When the east wind blows, the level of the water in the Elbe changes so suddenly that shipping is sometimes

entirely suspended for the largest vessels, which have to wait till the clouds roll by. Hamburg has also to deal with the ice problem, which, in severe winters, is a serious question for commerce.

#### A POSITION OF VANTAGE.

The River Elbe and its tributaries—like the St. Lawrence and the lakes—stretch far inland, and an immense trade is carried on by means of barges and lighters with interior Germany and Austria. At Hamburg the lower Elbe joins the upper, much in the same way as the Ottawa joins the St. Lawrence. At Hamburg inland and ocean navigation meet and exchange cargoes. This is why Hamburg is the chief seaport of Germany, and for the same natural reason Montreal must always be the chief seaport of Canada unless the apathy of her citizens allows the enterprise of other ports to rob her of a prestige and power that are the free gift of nature. Hamburg has spent millions of dollars on her quays, harbor equipment and channel, and these are owned and controlled by the city, with two exceptions, namely, the Petroleum Harbor, rented to the Star Line Oil Co., and the Paterson quay, leased to the Hamburg-American Line. The use of the quays is regulated by the quay department, which is a special branch of the municipal government. Here again public ownership is emphasized, because it means lower expenses of administration and lower profits to the owners than private parties would be contented with. The equipment of the port is most modern, railways coming down to the quayside, cranes and revolving capstans for lifting and hauling merchandise, etc. A prominent feature of handling trade in this port is the extensive lighterage business to

and from all parts of the city, made possible by the numerous canals leading from the harbor to the warehouses.

In 1888, when the great harbor improvements began, Hamburg was visited by 7,524 ocean vessels, her registered tonnage amounted to 4,355,511, her population about 450,000.

#### **BUSINESS ALMOST DOUBLED.**

In 1900, after fourteen years of continuous harbor improvement and the spending of millions of dollars on harbor equipment and channel deepening, 13,102 ocean ships arrived, her tonnage stood at 8,037,514 and her population had increased to 700,000. The vast sum of \$39,400,000 was spent to do this.

In Montreal, during the same time, brains and energy have been expended in talking about what ought to be done, newspaper columns have groaned under the weight of eloquent argument about our splendid natural position. We have deepened our channel and pushed out a few piers, but our great achievement is a monument of printers' ink and paper to characterize our business ability while our rivals have stoen our trade.

The finest canal system in the world, and great railways largely subsidized with Canadian money, stand ready to bring the country's over-ocean trade to our doors for trans-shipment, yet our apathy and lack of enterprize have forced the sale of the Canada Atlantic Railway in order that proper terminal facilities may be provided for the growing traffic of that road in a foreign country.

What we want is a thirty-foot channel, properly buoyed and lighted; a port equipped with modern machinery, storage sheds, elevators and railway facilities, and we want it just as quickly as money and enterprise can provide it.

## V-HAVRE

If you are a good sailor, and do not mind a longer sea trip in crossing the English Channel than you get in going by way of Calais-Dover, a pleasant variation of itinerary, on leaving Paris, is to go to Havre. The distance by rail is about the same as that between Montreal and Quebec, and the train carries you through the beautiful valley of the winding Seine, with its picturesque church spires and quaint Norman villages. Normandy is the land of orchards, green pastures, picturesque hillsides and interesting people. It is that part of France most directly opposite England, with Brittany on one side and Flanders on the other. When the Seine reaches the sea we find at its mouth a harbor that is remarkable principally because it is almost entirely artificial, constructed in the face of great engineering difficulties and at enormous expense. Havre itself is a typical Norman town of about 125,000 inhabitants, with its land side looking up the Seine valley towards the famous spires of the cathedral at Rouen. It looks out over the English Channel at Southampton and Plymouth. The port consists of an outer harbor protected by breakwaters, dykes, etc.; an inner harbor and ten huge docks, or inland basins, the whole looking like a huge triangle with its base away from the sea. The warrant for building up this great harbor is to be found in its location and accessibility. It is in rail or water communication with the commercial districts of England, Belgium, Holland, and of course is the port of Paris as well. "But while the advantages," says Mr. H. Vetillant, the eminent French engineer, "are in its favor as a seaport, there are certain engineering

difficulties in the way of carrying out important dock work, such as the foundation of quay walls and entrances upon recent alluvial deposits, not to mention the construction of heavy masonry in a district where the geological formation can supply none of the necessary material, such as stone, lime, cement and sand. Added to this, also, there is the difficulty of maintaining a sufficient depth of water in basins left open to the travel of shingle and to the mud-laden water of the bay."

#### THE PORT'S FACILITIES.

The water level changes in the bay from about fifteen feet at low tide to thirty-five feet at high. Ships drawing twenty-six feet and over can enter the port on 182 days per year during seven and a-half hours, twenty-five feet three inches on 365 days during twelve hours, nineteen feet six inches on 365 days during fifteen hours. The ten docks mentioned above supply a quayage length of about 45,000 feet. Extensive sheds line the quays for the housing of freight. There are twenty-one of these, supplying about 92,000 square yards of storage space. Special sheds are allotted to particular companies doing regular business with the port. The harbor equipment includes the following:—

- 30 hydraulic cranes.
- 4 hydraulic winches.
- 5 steam cranes.
- 8 floating steam cranes.
- 3 grain elevators.

One of the ten docks and part of another have been given into the control of a private company, which has pre-empted space equal to 183,500 square yards, used as follows:—

|                         |               |
|-------------------------|---------------|
| Shed space.....         | 34,700 yards. |
| Covered storage .....   | 39,000 "      |
| Thirty-nine warehouses. | 69,000 "      |

with a capacity of 150,000 tons of merchandise. This forms an entrepot for goods in transit. All the docks have railway connection, and the tracks are laid under the principal sheds, so that cargoes may be received and unloaded directly into the cars or vice versa.

The port dues used to be raised on vessels according to the country from which they came, a preference being made in favor of French ships. Now, however, a modified system prevails, of which the following is a brief synopsis :—

1. Vessels beginning their voyage, or having their destination outside of Europe, pay eight cents per registered ton.

2. Vessels beginning their voyage in France, and having their destination in a European port or a port in Africa or Asia or the Mediterranean, pay six cents per registered ton.

3. Vessels fully loaded, or loaded to the extent of nine-tenths of the carrying trade with cereals, timber from Northern Europe, fertilizers, coal, iron ore, mineral oil, and ice, pay eight cents per registered ton.

A reduction of 30 per cent. is made for vessels belonging to a regular line having at least one departure per month, and 40 per cent. when the departure is weekly.

In 1899 the tonnage of the port amounted to 5,468,121 registered, and the number of ships 12,397.

#### EUROPEAN PORTS.

Consideration has been given in the last three letters to the ports of Hamburg, Rotterdam, Antwerp, and this one on Havre completes the brief review of the Continental harbors which the writer was able to visit. These great European ports have all become modernized within the last fifteen

years. They have all had natural or political difficulties to overcome. They have all had to expend large sums of money to carry out their harbor improvements. In no case has the result been disappointing; on the contrary, the benefits to shippers, ship-owners, merchants, real estate owners and traders of all classes, not only of the commercial port itself but the country districts as well as the industrial, all have recorded increased population and prosperity, largely due to increased national trade made possible by cheapening the manipulation of commerce at the sea terminals. To these, therefore, the benefits have been tangible and immediate. The produce raised in the farm districts finds a readier market and allows a greater profit to the producer if his transportation charges can be reduced by cheapening the cost of handling, hastening their arrival at destination. And so this question of port development becomes one of simple dollars and cents to every citizen of every Province, no matter what be his calling or what part of the country he chooses for his home.

The lesson of Continental ports, for Canadians, is obviously for all Provinces to unite in a common effort to promote the development of national trade and the export of Canadian commerce through Canadian ports. The way to do it is to urge the spending of the nation's money upon Canada's natural sea ports in proportion to their obvious advantages, and thus save to the country the trade that now goes to the States.

## VI—LONDON

If the entire population of Canada were to forsake the provinces and assemble upon the Island of Montreal, if all the cities, towns and villages between the two great oceans that wall us in could be lifted up and planted within an area of 125 square miles, the vastness of the world's metropolis might be imagined and the meaning of such congested living conceived. From London to the sea at Sheerness is about 50 miles, and the river Thames winds its tortuous body like a serpent, slowly creeping to the sea. There are more Scotchmen in London than in Edinburgh, more Jews than in Palestine, more Roman Catholics than in Rome. There is too much of passing interest in London for any one to give up the time to visit the port and docks unless upon some special object bent. Starting at Westminster Bridge most people go up the Thames towards Richmond and Kew in search of those picturesque reaches of water that are known to so many lovers of summer beauty. But to him who cares to devote the time, no more interesting sight exists than a trip down the artery of the world's commercial heart. It was a drizzling cold December day, clouds, fog and smoke hanging overhead, when I descended the stone steps at Westminster Bridge and purchased a ticket for Greenwich. Taking one of the little boats that ply up and down, I could not help thinking of the clever bus-drivers on the Strand who are not more skillful than the helmsmen of these little floating fire-flies as they dart from one side to the other on the crowded stream. Beneath the arches of Charing Cross and Waterloo Bridges we go, with the Thames embankment on the left, Som-

erset House and the Temple coming into view just before the river sheers to the right under London Bridge, past Billingsgate Market to the Tower. Here the docks begin.

The banks of the river and the vicinity of the docks are crowded with immense warehouses for the storage of ships' cargoes awaiting sale or reshipment.

#### LONDON DOCKS.

Right alongside the Tower are the St. Catherine docks, built in 1822. To accommodate these 1,250 houses, 11,300 people and 24 acres of ground were moved. A little further away, but on the same side of the river, are the London docks, costing twenty million dollars and covering 120 acres. These two docks are owned and managed by the St. Catherine & London Docks Co., with a capital of thirteen million pounds. The warehouses of this dock company have a storage capacity of over 300,000 tons for goods, and cellars for eight million gallons of wine. It is idle to attempt to picture the stupendous activity and wealth which these overflowing warehouses represent. But this is only the beginning. A little further on, past Wapping Basin, we come to the Great West India Docks on the left and the Surrey Commercial Docks on the right. The former consisting of three huge parallel basins covering together an area of 300 acres the latter comprising a series of basins and warehouses, covering 350 acres more. Further on at Blackwall and Poplar you have the East India Docks and lower down still the great Victoria and Albert Docks, nearly three miles in length, and then nearly twenty-six miles below Blackfriars Bridge are the most recent additions to the docking system of London, at Tilbury.

The control of the river Thames, its channels, lighting, dredging, buoying and piloting is under the joint management of two historic bodies of men, known as "Trinity House" and the "Conservancy Board."

#### DIVERSE INTERESTS.

Broadly speaking Trinity House is the pilotage authority for the port of London and as such, lights, buoys and marks the river. The Conservancy Board surveys and dredges the channels. While the Thames is under the jurisdiction of two more or less conflicting governing bodies fifty-six different authorities control the port of London. These different interests began acquiring rights and owning river frontage when the business of the port was not thereby interfered with. But the growth of trade and demand for extension gave these a value hardly to be estimated, so that their owners created companies many times overstocked and to pay interest on the huge capitalization the port and dock charges became exorbitant. Not only this but each dock company had its own system of charging for and handling cargoes, so that shippers rarely knew what the cost of loading and unloading would be or where their ships would dock.

The progress of the port is much retarded by this diversity of administration. If the progress of our own port and channel, with our small share of trade, can be stagnated and practically shut out of business by only three conflicting authorities, the mass under which London is staggering to-day from the same cause must be apparent. What is happening in London in a large sense is also happening here. The trade is drifting round the coast to Southampton, Plymouth, Bristol and

Cardiff. Our trade is going to Portland, Boston and New York for the same reason.

A study of shipping on the Thames reveals the fact that as the draught of modern ships has increased, the docks nearest London, which were constructed first, are too small and shallow to accommodate this class of trade. These have materially lost business which has gone to the larger and more modern ones.

In the West India Dock Report for 1900 I find the following: "It shows how without regard to increasing size of ships, unless the dock is properly equipped, the tonnage will fall off." From 1871 to 1891 the tonnage of the West India dock fell from 347,774 tons to 121,373 tons. This dock was closed for three years in order to effect repairs. One year after it was equipped and reopened the tonnages increased 236,060 tons. The serious disadvantage, apart from diversity of authority in London, may be stated to be that the deep water required by modern vessels is far away down the river at a distance from the warehouses and centres of market, the Tilbury docks are the only ones that can accommodate ships of all tonnage. As these are the most modern I propose to briefly describe them.

Commenced in 1882, finished in 1886, they are situated twenty-six miles below London Bridge. The dock, which consists of one main basin and three smaller ones, has a water area of 53 and a land area for storage and warehouses of 530 acres. It is entered by a lock at the entrance of which the depth of the river is 27 feet. The lock basin is 700 feet long, 25 feet deep at low water and 45 at high, and a breadth of 80 feet. The main dock is 1,820 feet long and 600 feet wide. The branches are 1,600 feet by 300 feet and 34 feet

deep at neap-tide. This dock system can take care at one time of 20 ships, 600 feet long, or 30 of average size, the total quay length being about 15,000 lineal feet. Sheds 300 feet by 120 line the branch quays and are set back about 30 feet from the water's edge. The floors of these sheds are concrete. The quay walls of concrete faced with brick. The sheds are provided with roller shutters for their whole length, so that trucking can take place at any part. In all there are 34 sheds in the branch docks with about one million square feet floor space. With 27 ships in the dock each would have about 36,000 square feet. A double line of rails runs down to the quays and several lines at the back of the sheds. Within the boundary of the docks are 26 miles of rails.

Connected with the Tilbury system are two graving docks each 846 feet in length. Around the docks are 63 movable hydraulic cranes of a ton and a half capacity, innumerable capstans, a floating steam derrick, steam tugs and dredges, etc.

#### TRADE LEAVING THE PORT.

These basins through the tide accumulate enormous quantities of mud and dredging goes on continuously costing about \$50,000 per annum.

The tonnage of all these different dock systems comprising the port of London amounted in 1900 to 9,580,854, and the number of ocean ships entered during the same time, 11,118.

The Continental system, as explained in former letters, is almost entirely public; that is, the harbors and docks are publicly owned and managed.

Here in London is an example of the British system of private ownership, where each set of docks is separately owned and run for the purpose of making dividends, regardless

of competition from other ports. This has worked all right as long as the other ports could offer only inferior accommodation, but in the last few years other British ports have sized up the situation, improved their facilities, and while London has been kept busy patching up the squabbles among her diverse interests, these other ports have been building up trade at her expense. Of course London's trade is so enormous that the facts do not appear until you study the growth of the other ports. However, the British Parliamentary Commission on the port of London, held in 1900, establishes beyond question that no port can be properly managed or attempt to progress where the controlling authorities employ their time in throwing mud at each other instead of conducting their business in a serious and dignified way.

## VII—SOUTHAMPTON

About half way between Dover and Penzance, on the south coast of England, looking out over the Solent and the Isle of Wight is the picturesque town of Southampton, with its seventy odd thousand inhabitants. It was here that Richard Coeur de Lion set sail in the earlier centuries, inaugurating the famous crusades. From this port also the Pilgrim Fathers left on the Mayflower in quest of home, liberty and peace beyond the seas. From London to Southampton, by rail, takes about two hours, on the London & Southwestern Railroad, and by the enterprise of this railroad system the importance of Southampton as a port, and the development of her docks, has been accomplished. Of course, its proximity to London, and the splendid railway facilities between these two points, have been material factors in attracting trade and passengers. "We can give," says Mr. John Dixon, dock and marine superintendent, "and are providing here in Southampton facilities for vessels of any size and almost any conceivable draught. The time was when ships comparatively inexpensive had to be built to suit the ports, which were comparatively costly; now the situation is reversed, and ports, if their owners desire to attract and secure, or even to hold, trade, must be built to suit the ships, not only of the present but of the future. This, as I interpret it, is the policy of the Southampton Harbor Board and of the London & Southwestern Railway Company, a policy which the commissioners and directors are pursuing in the firm belief that it will meet with its due reward at the hands of the great travelling public, and of those who control the various branches of the carrying trade of the world."

### THE RAILWAY'S INTERESTS.

Although the port is under the jurisdiction of a harbor board, which has existed for over ninety years, and carries out the dredging, lighting, buoying, etc., of the harbor, the railway company maintains the docks and terminals with the exception of the Town quay and the Royal pier. The city is built on a kind of a peninsula formed by the junction of two rivers, and the harbor proper measures about five miles in length by a width of nearly three-quarters of a mile and a depth sufficient for vessels of all tonnage.

In 1838 the first docks were begun, and completed in 1843. In 1851 a period of stagnation set in, which lasted until 1876, during which time no harbor works of any note were attempted, and the depth of water in the harbor at that time at low tide was twenty feet. The whole dock system at the present time is shut off from the city by solid brick walls, with gates at intervals. The custom houses are established within the area, cut off by these walls, and the goods passing out through these gates must have the official stamp to show the duty has been paid upon them.

The perfect network of rails attracts a visitor within, and upon seeing these you cannot but realize that this port is practically a railway terminal of great magnitude.

The great Empress dock, completed in 1890, eighteen and a-half acres in extent, with its four quays, about 1,000 feet each in length and a minimum depth of twenty-six feet, is one of the few docks in Great Britain or Europe into which the largest vessels afloat can steam, load, unload and depart, irrespective of the state of the tide.

### A LARGE SALE.

In 1892 all the docks, with the exceptions already noted, were sold to the railway company for \$6,618,440, and the commercial prosperity of Southampton can be dated from that time. This company immediately set to work upon a series of huge undertakings which have placed Southampton among the finest and best-equipped ports of Great Britain. Up to 1892 the people of Southampton failed to realize the importance of the great natural advantages possessed by the city, but under the application of individual enterprise and unity of purpose, new steamship companies have come to the port, and a city which only a few years ago was thought little of, has become one of the great competing ports of Great Britain. Modern machinery of every description for the cheapening of handling in cargoes, transit sheds, warehouses with railway communication alongside, and under cover, cold storage for thousands of quarters of American meat, and wine vaults, all these have been constructed at enormous cost by the railway company.

One large warehouse in particular cannot fail to attract attention. This building, on the north side of the "Close Dock," is about 300 feet long, eight storeys high, and is planned for the storage of grain, flour, bacon and cheese. It is fitted up with elevators and conveyors of the most modern type. They handle grain at the rate of 100 tons per hour from ship, lighter or car.

Southampton, however, is only beginning her career as an import harbor; her importance as a port of call for passenger business is established. The facilities provided for the comfort of ocean travel are not surpassed

in England. The passenger arriving from sea, steps from the ship into the special train, and in one hour and forty minutes can be in London. The business of the port is run as part of an enterprising railway system, and bears unmistakable signs of a great and prosperous future.

## VII-BRISTOL

Following the south coast of England, past the Isle of Wight to Plymouth, round the Lizard Head and Land's End, turning northward along the shore of Cornwall and Devon, the sea makes a deep inland V-shaped water area called Bristol Channel. The entrance to this channel approached from the sea looks not unlike the lower waters of the Gulf of St. Lawrence. Before the channel narrows to the Severn's mouth and separated by some twenty miles of tide water, are the two well known ports of Cardiff and Bristol, facing each other from either side of the bay. These two ports have each their own special business, Cardiff being the great exporting centre for Welsh coal and Bristol the distributing point for an ever-increasing import trade. This provides return cargoes within easy reach, a matter of no small significance to Canadian exporters. Bristol, on the Avon, seven miles from the sea, has always been a commercial city of importance, and is to-day the chief seaport of southwest England. In the fifteenth century there was but one city in England that rivalled her in trade. It was from her shores that John and Sebastian Cabot set sail on their famous voyages of discovery and adventure. These two mariners left Bristol and sailed up the Gulf of St. Lawrence shortly after Columbus became famous for the discovery of America.

### THE RIVER AVON.

The River Avon is about the same size as the Richelieu, the latter's swift current and plunging waterfalls being replaced by a tide which rises at springs to a height of forty feet. This small tidal river, which empties twice a day, flows to the sea in a channel,

the bed of which is solid limestone. Its banks are precipitous and its course is a tortuous one. I lay particular stress upon these facts because Nature evidently never anticipated that the demands of commerce and the genius of man would combine to upset her plans. In the seven miles that separate the city from the sea are to be found more natural difficulties to overcome than in all the hundred miles that flow between Montreal and the Straits of Belle Isle. The bottom of the river, once a certain depth was reached, could no longer be dredged, but had to be blasted, the turnings in the river were so sharp that two ships could not dare to meet at any of them without sure disaster. By a perfect system of buoying, lighting and land signals, the blasting of a new channel, ships come right up into the city harbor alongside the great warehouses. The city is built on both sides of the river and the ships come up into the town much the same as if Craig street were widened and turned into a canal.

#### THE DOCK SYSTEM.

The port of Bristol comprises the town dock system in the heart of the city, Avonmouth and Portishead docks, the former, as its name indicates, at the Avon's mouth, the latter in direct communication with the sea a few miles away. Imagine the River St. Lawrence to be 150 yards wide, instead of two miles, and Montreal intersected by it, the sea at the lower end of the island, and on either side the river two huge docks. You would then have a fair reproduction of what the port of Bristol is like. Vessels drawing sixteen feet come to the city docks. Over this they go to Avonmouth or Portishead. The situation of Bristol gives her command of an area of country the population of

which reaches nearly twelve millions. Here within a few hundred miles is a market for Canadian products twice as large as the whole population of our own country. From the works already accomplished and the plans for the future, I should judge that Bristol has set herself the task of outfitting a harbor which shall make a specialty of import trade, principally in foodstuffs, grain, timber, provisions, ores, fruit and cattle. I saw more Canadian products in Bristol than anywhere else, and they were better cared for than in any port visited.

In 1803, by act of Parliament, Bristol dammed a certain portion of the River Avon, and so created the city dock at a cost of £750,000. This work was undertaken by a joint stock company. By exorbitant charges and stringent conditions imposed by this corporation the shipping of the port withered to such an extent that in 1848 the city was forced in self-defence to buy the property. The first thing they did on acquiring these docks was to lower the shipping dues to about one-third, the citizens agreeing to be taxed to the extent of 4 pence on the pound for any deficiency that might occur. Private companies in 1877 and 1881 opened up two large docks, one at Avonmouth and one at Portishead, for the accommodation of vessels which could not get up to Bristol. For some reason or other neither of these docks was a success financially under individual management, and instead of attracting the trade of larger vessels, for which they were built, they became competitors for the class of trade which could easily be accommodated at the city docks. This went on for some time, till, in 1884, when again in self-defence, the corporation had to acquire these two docks. This brought the

entire system under municipal management, consisting of nineteen members of the town council selected annually by that body. In money the dock estate represented about £12,000,000. Under this management foreign trade, population and wealth of the city have enormously increased, and the business of the port has become known for its efficient management, splendid accommodation, model equipment and low rates. The money to build the docks and equip the harbor was borrowed at 2.16 per cent., and consequently the city can afford to charge moderate dues and still have a fair return on the money invested. The whole revenue pays about 3.1-2 per cent. on the outstanding capital of the whole concern. Coincident with the modernization of docks and terminals in Bristol has been recorded increased population, increased value of ratable property, and unprecedented growth of industries in the city.

#### MUNICIPAL MANAGEMENT.

The municipal management of the dock system has been a great success, largely because they have had the good fortune to select a docks' manager of great business ability and unswerving loyalty to the trust and wide powers bestowed upon him. The corporation practically undertakes and efficiently carries out the whole of the work for the shippers and merchants in connection with which a large warehousing business is carried on and "corporation warrants" given for goods stored. It is altogether a wonderful achievement under municipal ownership to provide a system which has gained a reputation among merchants and shippers of being one of the cheapest and most convenient ports in England. The debenture stock, bearing interest at 3.1-2 per cent., is quoted at 123. The

entire capital needed for the construction of these docks was borrowed, and a sinking fund has been established wherewith in fifty years the whole debt will be wiped out.

Behind all the efforts towards efficient management seems to be the principle that to increase the volume of trade done by the port is vastly more beneficial than the making of undue profits through the charging of high rates. With this in view it has been possible, out of the revenue of the port, to provide permanent sheds, cranes, quays, railways and telephones, besides providing for the sinking fund. If this continues the citizens will possess in fifty years a dock system splendidly equipped, free of debt. The active management of this dock system consists of a general manager, secretary, engineer, and two assistants, collectors of dues, a chief clerk, a legal officer, six dock masters, three traffic managers, and a large staff of clerks.

The railway facilities at all three dock systems are ample and efficient, so that vessels may discharge and receive freight direct from the cars. Add to this modern storage sheds and handling machinery, and you have the three essential qualifications necessary for the equipment of a first-class dock. I was more particularly interested in the facilities offered by this port because I saw more Canadian produce here than anywhere else, and as much depends upon how our export trade is handled when it reaches its destination, it was a pleasure to note the care and attention given here to this subject. The sheds that line the quays are built of brick and are two storeys high, the ground floor paved with cobblestones, the upper with wood. Delivery of goods from the upper to the lower

sheds takes place through chutes. Continuous sliding doors on both floors and on both sides of the shed make the reception and shipment of freight easy and quick. In the most modern sheds the lower floor rises as it leaves the quay, so that when a truck reaches the inner wall of the shed the floor is on a level with the platform of the car. This does away with extra lifting and cheapens the handling of merchandise to no small extent. These sheds are about 300 feet long by 90 feet wide, and cost about \$25,000.

I witnessed the discharge of a cargo of cotton seed by the means of a portable system of belts, that could be carried from ship to ship at the rate of 100 tons per hour, 25,000 bunches of bananas unloaded in eight hours and stored in a fruit shed, cooled or heated to hasten or retard the ripening according to the state of the market.

#### THE FACILITIES

The large grain elevator into which the cars run is built without bins, but has novel movable partitions kept in place by the weight of the grain. This allows the storage of large or small lots and preserves its identity. I saw Canadian butter and cheese in cold storage rooms within a few feet of the ships, transferred from hold to storage room under cover in a few minutes with little or no exposure. In watching the handling of Canadian produce in the port of Bristol I could not help feeling that Canada is doing a great injury to her own export trade, an injustice to the farmer and merchant, by neglecting to supply the very best port equipment at her sea terminals. Not only this, but it is useless to attempt building up a trade with any foreign port unless we are prepared to supply modern accommodation and shipping facilities in our own ports. To fa-

facilitate trade development to the utmost there must be co-operation and harmony of purpose between the port authorities, railway companies and shipowners at both ends. I believe the greatest developer of Canadian trade would be a system of through rates from Canadian centres of production to English centres of consumption. To make this possible the total cost of transportation between extreme points must be brought down to the lowest possible figure. This can only be expected by the employment of up-to-date works and modern dock facilities.

Bristol has already accomplished her part in this respect with the docks now in existence, and with such success that the inauguration of an additional new dock at Avonmouth is announced under the distinguished patronage of H.R.H. the Prince of Wales. This dock will add thirty acres of water space and 230 acres of land area for the development of more shipping. This dock will be 1,100 feet long by 1,000 feet wide. Ships will be locked in from the sea in a lock 850 feet long by 85 feet wide. The depth will be 35 feet at spring and 25 feet at neap tides, and equipped with hydraulic cranes and capstans, two storied brick storage sheds, graving docks, grain elevators, and cold storage.

How long will the people of Canada allow themselves to be taxed to the extent of an enormous loss of trade annually simply because our ports are primitive and badly equipped, not one of them being fit to rank alongside the most antiquated port of Europe?

## IX—LIVERPOOL

Letters have been written describing briefly the ports of Hamburg, Rotterdam, Antwerp, and Havre, representing the Continental system of sea terminals. The ports of London, Southampton and Bristol have been treated similarly from a British point of view. There remain many more British ports, the description of which might be interesting and instructive, the greatest of all being Liverpool. As my stay in Liverpool was short, I will refrain from any attempt at detail in connection with the great port, because a whole book would require to be written were the subject discussed with justice. This letter will be devoted, therefore, to an attempt to briefly picture the magnitude of the world's greatest harbor. Late in December of last year I arrived in Liverpool, shortly after the appalling railway disaster upon the elevated electric road that skirts the harbor. It was largely from the window of this railway that my impressions of the port were gathered in the course of a single day. If you were to begin at McGill Street and demolish all the buildings eastward from Notre Dame Street to the river for a distance of seven miles and then construct within that area half a hundred docks and basins varying in size from forty-four acres to ten, surround these with huge storage warehouses for cotton, tobacco, grain elevators and transit sheds and envelop these with a network of railway tracks, then upon these basins place upwards of seventy ocean steamers surrounded by innumerable small craft loading and unloading cargoes from the four corners of the earth, consisting of cattle, grain, cotton, produce, tobacco and timber; people the streets and approaches to

the docks with a hundred thousand busy laborers, 20,000 dray horses and trucks of every description, and you would then have a picture of one day's business activity in the greatest seaport in the world.

#### A MODEL PORT.

After seeing most of the seaports, it suffices to say, concerning Liverpool, that as a model port she far exceeds all others in volume of trade, warehouse accommodation, facilities for the rapid discharge of or loading of ships, and the depth of her channel. The London docks handle more imports than come to Liverpool, but this is not due to the provision of a model port system and equipment, but rather in spite of very great drawbacks, just as a certain amount of trade comes to Montreal because it has to and not by reason of any facilities our port offers. By the Mersey Docks and Harbor Act of 1857 the control and management of the docks at Liverpool and Birkenhead devolved upon the Mersey Docks and Harbor Board. This board consists of twenty-eight members, of whom twenty-four are elected by the dock rate-payers; each member is elected for a term of four years, and may be again re-elected at the end of that time. The electors consist of those who pay shipping dues to an amount of not less than £10 in the year preceding the date of election. Directly opposite Liverpool there is a stretch of water of some 1,500 yards in width, and the depth varies from fifty to seventy feet at low tide. Liverpool is therefore practically the only port of Europe which has nearly double the regular depth of water in her harbor at all times of the year, and to this fact primarily can be attributed her unassailable position as a seaport. To the

northward, sea vessels must cross the Irish Channel, past the Isle of Man, through the North Channel into the Atlantic. To the southward they go out to sea past Holyhead and through St. George's Channel. The dangers of extreme traffic over these waters lying between Great Britain and Ireland, the confluence of coastwise trade between ports, and the oversea shipping would make these channels among the most dreaded to navigators were it not for a perfected system of lights, charts and buoys, and the excellent pilotage regulations. By applying the same businesslike methods to our own St. Lawrence route the same confidence can be established in it.

In the early nineties the main ship channel at Liverpool was obstructed by a sandbar, which seemed to baffle efforts made for its destruction. However, constant experimenting with dredges of various capacities terminated in a huge hopper barge of 320 feet long by 47 feet beam being built, capable of holding 3,000 tons of sand, and provided with suction pumps, which enabled her to lift that quantity from the bed of the river in forty-five minutes. Where vessels formerly had to wait for high tide to get over this sandbar, they now have a channel 1,450 feet wide and 24 feet deep at the lowest tide. The great passenger ships now steam right up alongside the landing stage, where different railroads meet the transatlantic traffic, and every convenience is offered for the dispatch of business.

Liverpool has a population of about three-quarters of a million, has a dock frontage on the river of over seven miles, an enclosed area of 546 acres, with a wharf frontage of thirty-five miles.

The port of Liverpool, her docks, harbor equipment, channel deepening and lighting represent an outlay of over \$200,000,000. The Harbor Board have taken out 10,000,000 tons of sand in five years from the river bed to enable the approach of ocean steamers at all stages of tide.

There are twenty-four dry docks of various sizes in the port, in one of which I saw the *Oceanic* during my visit. It is awe-inspiring to see a huge ship like this in dry dock. Why such a huge mass of steel and iron should float is one of the first thoughts that rush through the mind, and how little you realize what lies below unseen when you are walking the deck.

#### SOME INTERESTING FIGURES.

In the preceding letters attempt has been made to emphasize what British and foreign seaports have done to modernize their sea terminals. Channel lighting and deepening, river buoying, dock construction, handling machinery, storage sheds and railway facilities have been shown to have received special study by all the ports described. The following statement will show the population, foreign tonnage, and money expended on docks and harbors. The year 1901 is taken as the one year in which items under the different heads are obtainable for all places cited:—

|                                        | Population. | Foreign tonnage entered. | Money expended on harbors, docks, etc. |
|----------------------------------------|-------------|--------------------------|----------------------------------------|
| London .....                           | 4,212,000   | 8,302,000                | • .....                                |
| Liverpool .....                        | 600,000     | 5,492,000                | \$200,000,000                          |
| Glasgow .....                          | 678,000     | 1,068,000                | 74,000,000                             |
| Hamburg .....                          | 520,000     | 8,229,000                | 420,000                                |
| Antwerp .....                          | 303,000     | 5,008,000                | 25,000,000                             |
| Bristol .....                          | 390,000     | 774,000                  | 10,500,000                             |
| Rotterdam .....                        | 202,000     | 4,143,000                | 25,985,000                             |
| Tyne Ports (Newcastle & Shields) ..... | 300,000     | 3,471,000                | 26,500,000                             |
| Havre .....                            | 120,000     | 2,271,000                | 28,000,000                             |
| Montreal (1895) .....                  | 220,000     | 721,000                  | 3,975,000                              |

\*Unobtainable.

Relatively, there has been no change since then. It will be noted that Montreal stands at the bottom of the list. In plain English, this means that Canada's great seaport is the worst-equipped port in the world, and she will remain so just as long as her citizens are contented with dirty streets, grain elevators that elevate our grain to Portland and Boston, and a system of national trade that deliberately encourages the placing of business in the hands of our rivals.

These letters appeared in the "Montreal Herald" during the early part of 1902, and are reprinted by request. In their preparation, in addition to the personal visit of the writer to the different ports described, recourse has been had to various Reports, Documents, Papers supplied through Consular offices and other sources. To the Dock Managers in the different ports, by whose courtesy the different ports were visited and inspected, the writer desires to express his appreciation.

THE AUTHOR.